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EXAMINER	
BRINEY III, WALTER F	
ART UNIT	**PAPER NUMBER**
2644	3

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/608,743	JERREL P. HEIN, MARIUS GOLDENBERG	
	Examiner	Art Unit	
	Walter F Briney III	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on 3 .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 and 15-18 is/are rejected.

7)☒ Claim(s) 13, 14, 19, and 20 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 June 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-7, 9-10, 12, 15-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosch et al. (US Patent 5,274,702) in view of Millman et al. (Integrated Electronics: Analog and Digital Circuits and Systems, Copyright 1972. Page 254, "The CB Configuration").

Claim 1 is limited in part to a method comprising the steps of receiving an outgoing audio signal and coupling the audio signal to a subscriber line. The Rosch reference discloses a telephone line interface circuit (i.e. subscriber line interface circuit or SLIC) that receives an outgoing audio signal from the central office (CO) on the receive line (figure 1, element 22), which is coupled to the subscriber line (figure 3, element 36) through a circuit with amplifier circuits (figure 3, elements 104, 106, 132, and 134). Therefore, it can be seen that Rosch contains all elements of the claim with the exception of coupling the audio signal to the subscriber line with transistors coupled in the common base configuration. Millman teaches that a transistor in common base configuration can be used in several applications, one of which is matching a low impedance source to a high impedance load. The circuit of figure 3 (Rosch) depicts amplifiers 132 and 134 connected to low impedance sources superposed with the

receive path signal (i.e. audio signal) driving the tip and ring lines (i.e. high impedance load/subscriber line) respectively. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transistors, coupled in the common-base configuration, for the line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Millman.

Claim 2 is limited to the method of claim 1, which is covered by Rosch in view of Millman, and further comprising the step of receiving linefeed driver control signals for controlling battery feed to the subscriber line, wherein the outgoing audio signal and the linefeed driver control signals are received on the same signal lines. Rosch discloses a system of feedback controls generated by a sensing network (figure 2). The sensing network generates power controls (i.e. linefeed driver control signals) to the power and signaling control interface, which control the current sources that control the power sources (i.e. battery feed). The power controls are generated from the tip and ring lines of the subscriber line (figure 2, element 14; column 10, lines 67-68 and column 11, lines 1-16) and since the tip and ring lines are generated from the received audio line (i.e. outgoing audio) (column 10) the received audio line receives the outgoing audio and the linefeed driver control signals.

Claim 3 is limited to the method of claim 1, which is covered by Rosch in view of Millman, and in addition using BJT for the transistors coupled in common-base configuration. Millman describes a common-base stage amplifier as a p-n-p or an n-p-n

transistor (BJT) (page 126 and figure 5-3a). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claim 5 is limited in part to a method comprising the steps of receiving linefeed driver control signals and outgoing audio signals on a same plurality of signal lines. Rosch discloses a telephone line interface circuit that comprises communication to the central office via a receive path (i.e. outgoing audio signals) and a commands path (i.e. linefeed driver control signals) (figure 1, elements 22 and 26), which constitute a same plurality of signal lines because they are multiple lines of communication all from the CO. Therefore, it can be seen that Rosch discloses all limitations of the claim with the exception of providing the outgoing audio signals to a subscriber line through a common base isolation stage. A common base isolation stage is in essence the same as coupling an audio signal to a subscriber line through a plurality of transistors coupled in a common-base configuration as disclosed in claim 1, as covered by Rosch in view of Millman. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transistors, coupled in the common-base configuration serving as a common-base isolation stage, for the line driving amplifiers to provide a matching of impedance between a low impedance source with an audio signal, superposed on top, and a high impedance load as taught by Millman.

Claim 6 is limited to the method of claim 5, which is covered by Rosch in view of Millman, and further comprising the step of controlling a battery feed to a tip node and a ring node of the subscriber line in accordance with the linefeed driver control signals. Rosch discloses that the voltage supplies used in figure 3 being the CO battery voltages

(i.e. battery feed), which provide power to the ring and tip node of figure 3 (i.e. subscriber line). The battery feed is controlled with the current sources, which are controlled by the power control circuitry (i.e. linefeed driver control signals) (column 10, lines 39-66). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim

Claim 7 is limited to the apparatus of claim 5, which is covered by Rosch in view of Millman, and in addition using BJT for the transistors coupled in common-base configuration. Millman describes a common-base stage amplifier as a p-n-p or an n-p-n transistor (BJT) (page 126 and figure 5-3a). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claim 9 is limited in part to a subscriber line interface circuit apparatus comprising a first circuit for coupling a received outgoing audio signal to a subscriber line. These limitations are in essence the same as in claim 1, where an outgoing audio signal is received and coupled to a subscriber line through a plurality of transistors, as covered by Rosch. Therefore, it can be seen that Rosch discloses all limitations of the claim with the exception of providing the outgoing audio signals to a subscriber line through a common base isolation stage. A common base isolation stage is in essence the same as coupling an audio signal to a subscriber line through a plurality of transistors coupled in a common-base configuration as disclosed in claim 1, as covered by Rosch in view of Millman. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transistors, coupled in the common-base configuration serving as a common-base isolation stage, for the line driving

amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Millman.

Claim 10 is limited to the apparatus of claim 9, which is covered by Rosch in view of Millman, and in addition using BJT for the transistors coupled in common-base configuration. Millman describes a common-base stage amplifier as a p-n-p or an n-p-n transistor (BJT) (page 126 and figure 5-3a). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claim 12 is limited to the apparatus of claim 9 wherein the first circuit comprises a tip control circuit, wherein the tip control circuit increases a tip node voltage in response to a first tip control signal, wherein the tip control circuit decreases a tip node voltage in response to a second tip control signal; and a ring control circuit herein he ring control circuit increases a ring node voltage in response to a first ring control signal, wherein the ring control circuit decreases a ring node voltage in response to a second ring control signal. Rosch discloses two circuits, one for controlling the tip line and one for controlling the ring line of a subscriber loop, each with two current sources and one signal to each source such that the node voltage increases in response to one signal and decreases in response to the other signal (figure 3; column 11, lines 24-48). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claim 15 is limited in part to a subscriber line interface circuit apparatus, comprising a signal processor providing an outgoing audio signal; and a linefeed driver coupled to receive the outgoing audio signal. Rosch discloses a transmission interface

(figure 1, element 16), which provides a received audio signal (outgoing audio signal) through inverting amplifier circuitry that act as a signal processor (figure 3, elements 104 and 106). This signal flows into the linefeed driver circuitry (figure 3, elements 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, etc.). Therefore, it can be seen that Rosch discloses all limitations of the claim with the exception of coupling the outgoing audio signal to a subscriber line through a common-base isolation stage. A common base isolation stage is in essence the same as coupling an audio signal to a subscriber line through a plurality of transistors coupled in a common-base configuration as disclosed in claim 1, as covered by Rosch in view of Millman. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transistors, coupled in the common-base configuration serving as a common-base isolation stage, for the line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Millman.

Claim 16 is limited to the apparatus of claim 15, which is covered by Rosch in view of Millman, and in addition using BJT for the transistors coupled in common-base configuration. Millman describes a common-base stage amplifier as a p-n-p or an n-p-n transistor (BJT) (page 126 and figure 5-3a). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claim 18 is limited to the apparatus of claim 15 wherein the first circuit comprises a tip control circuit, wherein the tip control circuit increases a tip node voltage in response to a first tip control signal, wherein the tip control circuit decreases a tip node voltage in response to a second tip control signal; and a ring control circuit herein he

ring control circuit increases a ring node voltage in response to a first ring control signal, wherein the ring control circuit decreases a ring node voltage in response to a second ring control signal. Rosch discloses two circuits, one for controlling the tip line and one for controlling the ring line of a subscriber loop, each with two current sources and one signal to each source such that the node voltage increases in response to one signal and decreases in response to the other signal (figure 3; column 11, lines 24-48). Therefore, it can be seen that Rosch in view of Millman discloses or makes obvious all limitations of the claim.

Claims 4, 8, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosch in view of Millman as applied to claims 1, 5, 9, and 15 above, and further in view of Spanos (http://www-inst.eecs.berkeley.edu/~ee105/fall99/lectures/lectw10.pdf).

Claim 4 is limited to the method of claim 1, and as covered by Rosch in view of Millman. Therefore, it can be seen that Rosch in view of Millman lacks the FET wherein the common-base configuration is a common-gate configuration. Spanos teaches the analog nature between common-base and common-gate amplifiers, such that their input and output impedances are similar making them ideal for connecting low impedance sources to high impedance loads as described in claim 1. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of FET, coupled in the common-gate configuration, for the line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Spanos.

Claim 8 is limited to the method of claim 5, which is covered by Rosch in view of Millman. Therefore, it can be seen that Rosch in view of Millman lacks the FET wherein the common-base configuration is a common-gate configuration. The use of FET in common-gate configuration is essentially the same for reasons as stated in claim 4. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of FET, coupled in the common-gate configuration, for the line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Spanos.

Claim 11 is limited to the apparatus of claim 9, which is covered by Rosch in view of Millman. Therefore, it can be seen that Rosch in view of Millman lacks the FET wherein the common-base configuration is a common-gate configuration. The use of FET in common-gate configuration is essentially the same for reasons as stated in claim 4. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of FET, coupled in the common-gate configuration, for the line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Spanos.

Claim 17 is limited to the apparatus of claim 15, which is covered by Rosch in view of Millman. Therefore, it can be seen that Rosch in view of Millman lacks the FET wherein the common-base configuration is a common-gate configuration. The use of FET in common-gate configuration is essentially the same for reasons as stated in claim 4. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of FET, coupled in the common-gate configuration, for the

line driving amplifiers to match a low impedance source with an audio signal superposed on top to a high impedance load as taught by Spanos.

Allowable Subject Matter

Claims 13 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 13 is limited in part to the linefeed driver of claim 12, and as covered by Rosch in view of Millman, Therefore, it can be seen that Rosch in view of Millman discloses all limitations of the claim with the exception of the tip control circuit comprising a first transistor of a first type having an emitter coupled to receive the first tip control signal; a second transistor of the first type having an emitter coupled to receive the second tip control signal, wherein a base of each of the first and second transistors is coupled to a first node as a signal ground; a third transistor of a second type having a collector coupled to a collector of the first transistor and an emitter coupled to a second node; a resistor having a first end coupled to the second node, a second end of the resistor coupled to a base of the third transistor and a collector of the second transistor. As such, the prior art neither anticipates nor makes obvious the circuit configuration claimed; therefore, claim 19 is allowable matter.

Claim 19 is limited in part to the linefeed driver of claim 18, and is covered by Rosch in view of Millman. Therefore, it can be seen that Rosch in view of Millman

discloses all limitations of the claim with the exception of the tip control circuit comprising a first transistor of a first type having an emitter coupled to receive the first tip control signal; a second transistor of the first type having an emitter coupled to receive the second tip control signal, wherein a base of each of the first and second transistors is coupled to a first node as a signal ground; a third transistor of a second type having a collector coupled to a collector of the first transistor and an emitter coupled to a second node; a resistor having a first end coupled to the second node, a second end of the resistor coupled to a base of the third transistor and a collector of the second transistor. As such, the prior art neither anticipates nor makes obvious the circuit configuration claimed; therefore, claim 19 is allowable matter.

Claim 14 is allowable matter due to dependence from claim 13.

Claim 20 is allowable matter due to dependence from claim 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

WFB
July 24, 2003

MINSUN OH HARVEY
PRIMARY EXAMINER